

Utah Department of Transportation



**Supplemental Specifications
for**

**2005 Standard
Specifications**

**FOR ROAD AND BRIDGE
CONSTRUCTION**

U.S. Standard Units (Inch-Pound Units)

Issued September 11, 2006

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: September 11, 2006

TO: Holders of Hard Copy of Standard Specifications

FROM: Barry Axelrod, CDT
Standards and Specifications

SUBJECT: Supplemental Specifications Distribution, dated September 11, 2006

Applicable files for the change are attached. Maintain these files as a supplemental update to the UDOT Standard Specifications dated January 1, 2005. No pages are to be removed or replaced in the basic book, electronic or hard copy.

If you are in need of electronic copies of any Standard or Supplemental Specification please refer to the Standards and Specifications Web site at <http://www.udot.utah.gov/index.php?m=c&tid=302>. From there select the **2005 Standards** subtopic.

Please note that the 2005 Standards are still in effect. The next version of the Standards is planned for 2008.

If you have any questions or problems with the electronic files contact me at 801-964-4570 or by email at baxelrod@utah.gov.

Attachments

Listing of Supplemental Specifications

Issue Date: March 14, 2005

Revised February 24, 2005

Section 01282M Article 1.1 Paragraph D added and Article 1.14 Paragraph E replaced.

Section 01284 New section added

Section 02785M Replaces Table 1 to correct reference callout from AASHTO to ASTM

Section 02843 Entire section revised.

Section 06055M Article 1.2 Paragraph F added and Article 2.2 Paragraphs A and D modified.

Issue Date: May 10, 2005

Revised April 28, 2005

Section 02827 New section added

Issue Date: July 12, 2005

Revised June 30, 2005

Section 02745 Entire section revised.

Section 03412M Article 1.3 revised, Article 1.4 Paragraph E added, Article 1.5 Paragraph C added, and Article 3.7 added.

Section 05120 M Article 1.3 revised, Article 1.4 Paragraph D added, and Article 3.5 added.

Issue Date: September 12, 2005

Revised August 25, 2005

Section 01452M Article 3.1 Paragraph B item 1 replaced.

Section 01571 Entire section replaced.

Section 01574M Article 1.1 replaced, Article 1.3 Paragraph B added, and Article 3.1 Paragraphs F and G added.

Section 01721M Article 1.2 replaced.

Section 02842M Article 1.3 Paragraph C and Article 2.1 Paragraph A replaced.

Section 13551M Article 1.3 replaced, Article 2.1 replaced, Article 3.3 Paragraph C replaced, Article 3.5 Paragraph C replaced, and Article 3.5 Paragraph D added.

Section 13552M Article 1.1 Paragraph A replaced, Article 1.3 replaced, Article 2.2 through Article 2.6 replaced, Article 2.8, Paragraph C added, and Article 3.2 replaced.

Section 13553M Article 1.2 paragraphs I and J replaced, Article 1.3 replaced, Article 2.1 Paragraphs H and I replaced, Article 3.1 Paragraph F replaced, Article 3.1 Paragraph Q3 replaced, Article 3.2 Paragraph A replaced, Article 3.3 Paragraph F replaced, Article 3.4 Paragraph C added, and Article 3.5 Paragraph C added.

Section 13554M Article 2.2 replaced and Article 3.1 Paragraph N through H replaced.

Section 13555M Article 1.3 Paragraph E added, Article 2.1 Paragraph A replaced, Article 3.1 Paragraph D deleted, Article 3.2 Paragraphs C, G, and H replaced, Article 3.4 replaced, and Article 3.6 Paragraphs A and B replaced.

Section 13556 Entire section revised.

Section 13561M Article 2.1 Paragraph K added, Articles 3.1 Paragraphs E through G replaced, and Article 3.2 Paragraph A replaced.

Section 13594M Article 2.3 Paragraph A replaced, Article 2.3 Paragraph C replaced, Article 2.4 replaced.

Issue Date: November 9, 2005

Revised October 27, 2005

Section 00725M Article 1.2, paragraph B added, Article 1.4 replaced.

Section 02745 Entire section originally revised July 12, 2005. This change corrected error in Table 13, Float Test.

Issue Date: March 2, 2006

Revised February 23, 2006

Section 00555M Article 1.6, paragraph A replaced.

Section 00725M Article 1.2, paragraph B added, Article 1.4 replaced, Article 1.18 Paragraph C1 added, article 1.18 Paragraph D replaced, and Article 1.18 Paragraphs E – I replaced. **(Replaces Supplemental Specification 00725M issued November 9, 2005.)**

Section 00820M Article 1.2 replaced, Article 1.15 replaced, and Article 1.16 replaced.

Section 01280M Article 1.3 replaced and Article 1.10 deleted.

Section 01574M Article 1.1 replaced, Article 1.3 Paragraph B added, Article 1.4, paragraph B1 added, Article 3.1 Paragraphs F and G added, and Article 3.4, paragraph A replaced. **(Replaces Supplemental Specification 01574M issued September 12, 2005.)**

Section 01721M Article 1.1, Paragraph A replaced, Article 1.2 replaced, Article 1.5, Paragraph F and G replaced, Article 3.3, Paragraph C deleted, and Article 3.11 replaced. **(Replaces Supplemental Specification 01721M issued September 12, 2005.)**

Section 02317 Entire section revised.

Section 02748M Article 2.1, Paragraph A replaced, Article 2.2, Paragraph A replaced, and Article 3.2 replaced.

Issue Date: May 2, 2006

Revised April 27, 2006

Section 02633 New section added.

Section 13557 Entire section revised. Title changed.

Issue Date: July 11, 2006

Revised June 29, 2006

Section 01452M Article 1.5, paragraph B replaced, Article 3.1 Paragraph B item 1 replaced, and Table 1 replaced.

Section 01455 Entire section revised.

Section 01561 Deleted by change to Section 01571.

Section 01571 Entire section revised. Deleted Sections 01561 and 01574.

Section 01574 Deleted by change to Section 01571.

Section 02610 Entire section revised.

Section 02645 Entire section revised. Title changed.

Section 02896M Article 3.1, paragraph A replaced, Article 3.3, paragraph C7 added, and Article 3.3, paragraph E replaced.

Issue Date: September 11, 2006

Revised August 31, 2006

Section 02373M Article 1.3, Paragraph C deleted and Article 2.1 replaced.

Section 02613 Entire section revised.

Section 02741M Table 6 replaced.

Section 02785 Entire section revised. Replaced Supplemental Specification 02785M.

Section 02969 Entire section revised.

Section 03311M Table 1 replaced.

Section 03412M Article 3.2, Paragraph E replaced. Previously issued Supplemental Specification incorporated.

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SECTION 02373M

RIPRAP

Delete Article 1.3, Paragraph C.

Delete Article 2.1 and replace with the following:

2.1 AGGREGATE

- A. Durable, angular, hard, stone that is free from seams, cracks, or other structural defects.
- B. Maximum wear less than or equal to 40 percent when tested. AASHTO T 96.
- C. Loose Riprap: Stones graded in size so as to produce a dense mass. The greatest dimension of 50 percent of the stone to be at least $\frac{2}{3}$ times, but not more than $1\frac{1}{2}$ times, the specified thickness of the riprap layer. Not more than 10 percent of the rock will have a dimension of less than $\frac{1}{10}$ the indicated thickness of the riprap.
- D. Hand-placed riprap: Stones of not less than 3 inches in thickness, with 75 percent of stones being at least $\frac{1}{3}$ ft³ in volume.

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SECTION 02613

CULVERT END SECTIONS

Delete Section 02613 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for installing culvert end sections.

1.2 RELATED SECTIONS

- A. Section 02610: Pipe Culverts

PART 2 PRODUCTS

2.1 END SECTION

- A. Pipe Class Definitions: Refer to Section 02610.
- B. Coat metal end section identically to pipe material.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Use end section made of the same materials as the pipe or pipe arch to which it is connected.
 - 1. **Exception: Use metal end section with HDPE.**
- B. Place end section according to construction methods specified for the type and class of pipe to which they connect. Refer to DG series Standard Drawings and Section 02610.

END OF SECTION

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SECTION 02741M

HOT MIX ASPHALT (HMA)

Delete Table 6 and replace with the following:

Table 6

Aggregate Properties - HMA			
Test Method	Test No.	Category 1	Category 2
One Fractured Face	AASHTO TP 61	95% min.	85% min. (1 inch and 3/4 inch) 90% min. (1/2 inch and 3/8 inch)
Two Fractured Face	AASHTO TP 61	90% min.	80% min. (1 inch and 3/4 inch) 90% min. (1/2 inch and 3/8 inch)
Fine Aggregate Angularity	AASHTO T 304	45 min.	45 min.
Flakiness Index	UDOT MOI 933 (Based on 3/8 inch sieve and above)	23% max.	25% max.
L.A. Wear	AASHTO T 96	35% max.	40% max.
Sand Equivalent	AASHTO T 176 (Pre-wet method)	60 min.	45 min.
Plasticity Index	AASHTO T 89 and T 90	0	0
Unit Weight	AASHTO T 19	min. 75 lb/cu ft	min. 75 lb/cu ft
Soundness (sodium sulfate)	AASHTO T 104 (Loss with five Cycles)	16% max.	16% max.
Clay Lumps and Friable Particles	AASHTO T 112	2% max.	2% max.
Natural Fines	N/A	0% max.	10% max.
Category 1: National Highway System and Truck Routes - Table 11. Category 2: All Other Routes			

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SECTION 02785

CHIP SEAL COAT

Delete Section 02785 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for applying emulsified asphalt on a cleaned surface followed with an application of cover material and bituminous flush coat.
- B. Cover materials.

1.2 RELATED SECTIONS

- A. Section 01554: Traffic Control
- B. Section 01558: Temporary Pavement Markings
- C. Section 02745: Asphalt Material
- D. Section 02748: Prime Coat/Tack Coat

1.3 REFERENCES

- A. AASHTO M 140: Emulsified Asphalt
- B. AASHTO M 208: Cationic Emulsified Asphalt
- C. AASHTO MP 1: Performance Graded Asphalt Binder
- D. AASHTO T 11: Materials Finer Than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
- E. AASHTO T 19: Unit Weight and Voids in Aggregate

- F. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates
- G. AASHTO T 40: Sampling Bituminous Materials
- H. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
- I. AASHTO T 104: Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
- J. AASHTO T 278: Surface Frictional Properties Using the British Pendulum Tester
- K. AASHTO T 279: Accelerated Polishing of Aggregates Using the British Wheel
- L. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate
- M. UDOT Materials Manual of Instruction

1.4 ACCEPTANCE

- A. Emulsified Asphalt
 - 1. Refer to UDOT Materials Manual of Instruction, Sampling Chip Seal Emulsions. Do not use dip-sampling devices. Use either Option 1 or 2.
 - a. Option 1: Provide each delivery truck or trailer with a permanently installed sampling valve meeting the requirements of AASHTO T 40.
 - 1) Waste a minimum of 1 gallon of emulsion before taking each sample.
 - 2) Take the sample, comprised of two 1-quart plastic containers, in the presence of the Engineer or his appointed representative.
 - b. Option 2: Furnish a detachable valve fitting, meeting the requirements of AASHTO T 40 or similar to UDOT Materials Manual of Instruction 986, figure 1.
 - 1) Transfer approximately $\frac{1}{3}$ of the emulsion from the delivery unit into an empty tank or distributor before using the detachable valve fitting to obtain the sample.
 - 2) Waste a minimum of 1 gallon of emulsion before taking each sample.
 - 3) Take the sample, comprised of two 1-quart plastic containers, in the presence of the Engineer or his appointed representative.

- c. Accumulate and dispose all sampling waste in accordance with all applicable environmental regulations.
- d. Verify that the respective viscosity test results meet the requirements of Section 02745 prior to placing emulsified asphalt.

B. Cover Material

- 1. The Department samples and tests cover material at either the source of supply, the project stockpile, or both. The Engineer will:
 - a. Determine lot size and number of tests in accordance with Table 1.
 - b. Sample and retest for acceptance at the project stockpile at his discretion when material is sampled for acceptance at the source of supply.
 - c. Determine acceptance and pay factors in accordance with Table 2.

Table 1

Lot Size	
Lot Quantity* (Tons)	Number of Tests
> 2500	5
1500 to 2500	4
< 1500	3

* Individual lots may include material from one or more stockpiles.

Table 2

Cover Material Acceptance Schedule For Gradation (Percent passing)				
Sieve Size	Pay Factor*	Type A Acceptance Band**	Type B Acceptance	Type C Acceptance Band**
1/2 inch	1.00 0.95 0.90 0.85 Reject	100.0 99.0 98.0 97.0 < 97.0		100.0 99.0 98.0 97.0 < 97.0
3/8 inch	1.00 0.95 0.90 0.85 Reject	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 82.0		70.0 - 90.0 69.5 - 91.5 69.2 - 92.0 68.0 - 92.0 < 68.0 or > 92.0
No. 4	1.00 0.95 0.90 0.85 Reject	0 - 20 20.1 - 21.0 21.1 - 22.0 22.1 - 23.0 > 23.0	100.0 99.0 98.0 97.0 < 97.0	0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0
No. 8	1.00 0.95 0.90 0.85 Reject	0 - 5 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0	85.0 - 100 84.0 - 84.9 83.0 - 83.9 82.0 - 82.9 < 82.0	0.0 - 3.0 3.1 - 3.5 3.6 - 4.0 4.1 - 5.0 > 5.0
No. 16	1.00 0.95 0.90 0.85 Reject		10.0 - 25.0 9.5 - 25.5 9.0 - 26.0 8.5 - 26.5 < 8.5 or > 26.5	
No. 50	1.00 0.95 0.90 0.85 Reject		0.0 - 5.0 5.1 - 5.5 5.6 - 6.0 6.1 - 7.0 > 7.0	
No. 200	1.00 0.75 0.50 Reject	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 > 2.0	0.0 - 2.0 2.1 - 2.5 2.6 - 3.0 > 3.0	0.0 - 1.0 1.1 - 1.5 1.6 - 2.0 > 2.0

* Use the lowest individual pay factor for combined gradation

** Average of tests

PART 2 PRODUCTS

2.1 PERFORMANCE GRADED PG BINDER - AASHTO MP 1

- A. PG58-22: Refer to Section 02745.
- B. PG64-22: Refer to Section 02745.

2.2 ANIONIC EMULSIONS

- A. RS-2: Refer to AASHTO M 140.

2.3 CATIONIC EMULSIONS - AASHTO M 208

- A. CRS-2A: Refer to Section 02745.
- B. CRS-2B: Refer to Section 02745.
- C. CRS-2P: Refer to Section 02745.
- D. LMCRS-2: Refer to Section 02745.

2.4 HIGH FLOAT EMULSIONS

- A. HFRS-2P: Refer to Section 02745.
- B. HFMS-2: Refer to AASHTO M 140.
- C. HFMS-2P: Refer to Section 02745.

2.5 FLUSH COAT

- A. Use one of the following emulsions agreed upon by the Engineer (Refer to Section 02745) diluted, two parts concentrate to one part water, by the Manufacturer:
 - 1. CSS-1
 - 2. CSS-1h
 - 3. SS-1
 - 4. SS-1h
 - 5. HFMS-2P

2.6 COVER MATERIAL

- A. Use crusher processed virgin aggregate consisting of natural stone, gravel, or slag meeting the requirements of Table 3.

Table 3
Chip Seal Cover Material Properties

Unit Weight	AASHTO T 19	100 lb/ft ³ , max.
One Fractured Face	ASTM D 5821	95% min.
Two Fractured Faces	ASTM D 5821	90% min.
LA wear, see Note 1	AASHTO T 96	30% max.
Soundness	AASHTO T 104	10% max.
Flakiness Index	Material MOI 8-933	17 max.
Stripping, see Note 1	Materials MOI 8-945	10% max.
Polishing, see Note 1	AASHTO T 278, T 279	31 min.
Note 1: The Department has the right to waive this requirement if the aggregates have proven acceptable through successful past performance as determined by the Engineer.		

- B. Grade with the following limits to meet the specified test standard in AASHTO T 27 and T 11.

Table 4
Gradation Limits

Sieve Size	Percent Passing		
	Type A	Type B	Type C
1/2 in	100		100
3/8 in	85-100		70-90
No. 4	0-20	100	0-5
No. 8	0-5	85-100	0-3
No. 16		10-25	
No. 50		0-5	
No. 200	0-1	0-2	0-1

2.7 BLOTTER MATERIAL

- A. Refer to Section 02748.

2.8 TEMPORARY PAVEMENT MARKERS

- A. Refer to Section 01558.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean all dirt, sand, dust, and other objectionable material from the surface to the satisfaction of the Engineer.
- B. Protect all structures from being spattered or marred including guardrail, guideposts, concrete barriers, and parapet walls for example.

3.2 LIMITATIONS

- A. Complete all work between May 15 and August 31.
- B. Provide a minimum of 0.5 lb/yd² blotter material meeting the requirements of Section 02748 and application equipment at the project site prior to beginning seal coat work. Application equipment is subject to inspection and approval by the Engineer.
- C. Do not place any chip seal coat if the Engineer determines that excess moisture is present in the pavement structure.
- D. Place seal coat when:
 - 1. Pavement temperature is between 70 degrees F and 136 degrees F.
 - 2. Air temperature is 70 degrees F and rising in the shade.
- E. Complete all chip seal operations, including sweeping, during daylight hours.
- F. On Interstate routes, do not open to traffic the same day chip seal coat is placed.
 - 1. Sweep and open to traffic no earlier than 14 hours after placing cover material.

- G. Apply bituminous flush coat material no earlier than 14 days after the application of the cover material, or as directed by the Engineer.
 - 1. Apply bituminous flush coat material when the air temperature in the shade is 50 degrees F and rising.
 - 2. Do not apply bituminous flush coat material during fog, rain, or other adverse conditions.

3.3 COVER MATERIAL STOCKPILE

- A. Construct on a clean area to minimize contamination.
- B. Construct to facilitate uniform dampening. Avoid excess moisture.

3.4 TEMPORARY PAVEMENT MARKER APPLICATION

- A. Refer to Section 01558.

3.5 ASPHALT MATERIAL/COVER MATERIAL APPLICATION

- A. Use a distributor equipped with a hydrostatic system capable of maintaining a tolerance of ± 0.03 gal/yd².
 - 1. Apply at a rate sufficient to obtain 50 percent chip embedment before the rolling operation.
 - 2. Application rates may vary throughout the project depending on existing conditions.
 - 3. Equipment is subject to inspection and approval by the Engineer.
- B. Apply the asphalt emulsion at a minimum temperature of 145 degrees F.
- C. Place building paper adjacent to the transverse construction joint prior to starting each spraying operation. Maintain the control valve to act instantaneously, both in start-up and cut-off.
- D. Locate longitudinal joints within 6 inches of the traffic lane line location.
 - 1. Construct meet lines with no skip or voids between adjacent passes.
 - 2. Do not place a double thickness of cover material.
- E. Spread the cover material maintaining a tolerance of ± 1.0 lb/yd².
 - 1. Equipment is subject to inspection and approval by the Engineer.
- F. Calibrate the spreader at the beginning of each day and as often as required.

Table 5

Approximate Spread Rates	
Unit Weight lbs/ft³	Application Rate lbs/yd²
60.0 – 65.0	17.0
65.1 – 70.0	18.4
70.1 – 75.0	19.8
75.1 – 80.0	20.7
80.1 – 85.0	22.1
85.1 – 90.0	23.5
90.1 – 95.0	24.9
95.1 – 100.0	25.8

3.6 SURFACE ROLLING

- A. Use a minimum of two pneumatic-tire rollers in a longitudinal direction to roll surface after the cover material has been spread.
- B. Use a minimum of three passes to seat the cover material.
 - 1. A pass is defined as traveling in one direction only. Two passes is rolling forward and back.
- C. Control bleeding with blotter material and as directed by the Engineer.
- D. Set the roller speed to prevent bouncing or skidding.
 - 1. Reduce roller speeds during directional changes to prevent tearing of the surface.
 - 2. Repair all damage done to the seal coat by the rollers.
- E. Synchronize the speed of the distributor and chip spreader with that of the rolling operation.
- F. Sweep excess cover material off the roadway after the emulsion has set.
 - 1. Remove excess cover material to the satisfaction of the Engineer before opening the roadway to traffic.

3.7 BITUMINOUS FLUSH COAT APPLICATION

- A. Clean the surface of all dirt, sand, dust, loose chips, and other material to the satisfaction of the Engineer.

- B. Apply the bituminous flush coat at a rate of 0.11 gal/yd².
 - 1. Keep traffic off the flushed surface until the bituminous material has set sufficiently to prevent tracking or pick-up.
- C. Provide vendor's bill of lading certifying the material was diluted in accordance with this Section, article 2.5.

3.8 TRAFFIC CONTROL

- A. Refer to Section 01554.

END OF SECTION

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SECTION 02969

OPTIONAL USE OF RECLAIMED ASPHALT PAVEMENT

Delete Section 02969 and replace with the following:

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Option to incorporate Reclaimed Asphalt Pavement (RAP) materials into hot mix asphalt pavement, dense-graded material only.

1.2 RELATED SECTIONS

- A. Section 02741: Hot Mix Asphalt (HMA)
- B. Section 02745: Asphalt Materials

1.3 REFERENCES

- A. AASHTO M 320: Performance Graded Asphalt Binder
- B. AASHTO T 164: Quantitative Extraction of Bitumen from Paving Mixtures
- C. AASHTO T 319: Quantitative Extraction and Recovery of Asphalt Binder from Asphalt Mixture
- D. UDOT Materials Manual of Instruction
- E. UDOT Minimum Sampling and Testing Guide

1.4 SUBMITTALS

- A. Quality Control Plan.
 - 1. Submit the proportion of materials from each of the RAP stockpiles intended to be used in the project.
 - 2. Submit the sampling and testing plan for the project.

3. Provide testing by a UDOT Qualified laboratory of the reclaimed material and the total mixture at no additional cost to the Department.
4. Submit to the Engineer for approval.

PART 2 PRODUCTS

2.1 PG BINDER

- A. Select and supply a standard AASHTO M 320 PG Binder meeting the requirements of Section 02745 and Section 509 of the UDOT Minimum Sampling and Testing Guide: Asphalt Binder Quality Management Plan, in accordance to Table 1.

2.2 MIX DESIGN

- A. Obtain Engineer's approval for the use of RAP in the hot mix asphalt.
- B. Use up to 30 percent RAP by total weight in the hot mix asphalt, in accordance to Table 1.
- C. Provide the following for each RAP Stockpile:
 1. Extracted Gradation
 2. Asphalt Content
 3. Saturated - Surface Dry (SSD) Specific Gravity of Extracted Aggregate
- D. Provide the following for the RAP Material combined in proportions for the intended production of HMA:
 1. Performance Grade of recovered asphalt binder.
 - a. Use AASHTO T 164, Method E, with reagent grade Trichloroethylene and AASHTO T 319 to recover the asphalt binder.
 - b. Determine the performance grade of the recovered binder in accordance to AASHTO M 320 with the following modification:
 - 1) Pressure Aging Vessel (PAV) aging is not required before testing for fatigue and low temperature cracking.

- E. Select the percentage of RAP by total weight in the hot mix asphalt and the standard, virgin asphalt binder grade meeting Section 02745, using Table 1:

Table 1

Binder Selection Guidelines and Total Allowable RAP for RAP Mixtures		
Recovered RAP Asphalt Binder Grade	Desired RAP Percent	Recommended Virgin Asphalt Binder Grade
PGXX-22 or lower	< 20 percent	No Change in the Design Grade of the Asphalt Binder
	20 to 30 percent (30 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*)
PGXX-16	< 15 percent	No Change in the Design Grade of the Asphalt Binder
	15 - 25 percent (25 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*)
PGXX-10 or higher	< 10 percent	No Change in the Design Grade of the Asphalt Binder
	10 - 15 percent (15 percent maximum)	Select Virgin Binder one grade softer than normal (e.g. select a PG64-34 if a PG70-28 is the design grade*)

* Do not select any grades lower than PG XX-34.

- F. Meet all the requirements of Section 02741.
1. Aggregate Properties of Section 02741 apply to the combined virgin aggregate and RAP aggregate.
- G. Complete the mix design for the combined virgin and RAP materials following design requirements in Section 02741. Use an UDOT qualified laboratory for the design.
- H. Provide the following for the combined virgin and RAP materials:
1. Gradation
 2. Asphalt Binder content
 3. RAP content

PART 3 EXECUTION

3.1 RECLAIMED MATERIAL

- A. Crush or screen the reclaimed material to be used for recycle to pass a 1½ inch sieve.
 - 1. Construct stockpile platforms in such a way to prevent intrusion of subgrade materials into RAP.
 - 2. Provide adequate drainage for the stockpile site.
 - 3. Use separate cold feed bins for each stockpile.
 - 4. Use screened reclaimed material free of organic materials, soil, or other foreign substances.

END OF SECTION

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SECTION 03311M

JOINT CLOSURE

Delete Table 1 and replace with the following:

Table 1

Sealant Material Physical Properties		
Property	Value	Method
Modulus of elasticity of 100 percent elongation	132 psi	ASTM D 412
Hardness	40 ± 5	Shore A
Elongation (at break)	450 percent	ASTM D 412
Recovery	Greater Than 90 percent	
Tensile strength	190 psi	ASTM D 412
Adhesive in Peel	20 lbs/inch	
Adhesive loss	0 percent	
Service range	-40 degree F to 150 degrees F	
Initial cure, tack free, (depending on temperature and humidity)	6 to 8 hours	
Final cure	5 to 8 days	
Staining Characteristics	Non-staining	

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SECTION 03412M

PRESTRESSED CONCRETE

Delete Article 1.3 and replace with the following:

1.3 REFERENCES

- A. AASHTO M 203: Steel Strand, Uncoated Seven-Wire for Prestressed Concrete
- B. AASHTO M 270: Structural Steel for Bridges
- C. AASHTO Standard Specifications for Highway Bridges, Division II
- D. AASHTO LRFD Bridge Construction Specifications
- E. ASTM C 150: Portland Cement
- F. Federal Standards
- G. UDOT's Quality Management Plan

Add the following to Part 1, Article 1.4:

- E. Do not ship prestressed concrete members until tests on concrete cylinders, manufactured of the same concrete and cured under the same conditions as the girders, indicate that the concrete of the particular member has attained a compressive strength equal to the specified design compressive strength of the concrete in the member.

Add the following to Part 1, Article 1.5:

- C. Erection Plan: Submit an Erection Plan 10 days prior to beginning erection of prestressed concrete members for documentation purposes only. The Engineer will not approve the Erection Plan. Fully illustrate the proposed method of erection. Provide complete details of the process including, but not limited to:
 - 1. Temporary supports, bracing, guys, dead-men, lifting devices, connection details, and attachments to bridge members.

2. The schedule and sequence of erection, location of cranes, crane capacities, location of lifting points on the bridge members, member weights and any other assumed loads during progressive stages of construction.
3. Complete details for all anticipated phases and conditions during erection.
4. Minimum number and arrangement of primary members, secondary members, connections, etc. that must be installed, braced, and/or properly connected to provide structural integrity and stability.
5. Incorporate into the plan the requirements from this section, Article 3.7.
6. A professional engineer, licensed in the State of Utah, will approve, sign, and seal the Erection Plan and supporting calculations. The professional engineer must approve all changes to the Erection Plan prior to implementation.

Delete Article 3.2, paragraph E and replace with the following:

- E. Maximum temporary tensile stress (jacking stress) in prestressing steel not to exceed 75 percent of the specified minimum ultimate tensile strength.

Add the following to Part 3:

3.7 ERECTION

- A. Maintain responsibility for all aspects of girder erection during all stages of construction, including the protection of prestressed concrete members, the workers, and the traveling public.
- B. Erect all prestressed concrete members in compliance with the Erection Plan. Erect girders in a manner that prevents damage to all elements of the structure.
- C. Temporarily support, anchor and brace all erected superstructure members as necessary for stability and to resist wind or other loads until they are permanently secured to the structure. Support, anchor and brace all superstructure members as detailed in the Erection Plan before allowing traffic under the bridge.
- D. Design temporary supports and falsework in accordance with the current edition of the AASHTO LRFD Bridge Construction Specifications, Section 3 "Temporary Works."
- E. Accurately assemble all parts as specified in the contract documents or erection drawings. Follow any match-marks.

- F. Carefully handle materials so that no parts will be cracked, chipped, broken or otherwise damaged.
- G. Use lifting devices in a manner that does not cause damaging, bending, or torsional forces.
- H. Before the members are erected, clean bearing surfaces and surfaces that will be in permanent contact.
- I. Do not open traffic under a partially-erected bridge superstructure, unless allowed in the Erection Plan or approved by the professional engineer who approved, signed, and sealed the Erection Plan.